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| 2 June 2016 | ESMA/2016/773 RF |

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| Reply form for the Discussion Paper on the Distributed Ledger Technology Applied to Securities Markets  |
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| Date: 2 June 2016ESMA/2016/773 RF |

Responding to this paper

The European Securities and Markets Authority (ESMA) invites responses to the specific questions listed in the ESMA Discussion Paper on the Distributed Ledger Technology (DLT) Applied to Securities Markets, published on the ESMA website.

*Instructions*

Please note that, in order to facilitate the analysis of the large number of responses expected, you are requested to use this file to send your response to ESMA so as to allow us to process it properly. Therefore, ESMA will only be able to consider responses which follow the instructions described below:

* use this form and send your responses in Word format (pdf documents will not be considered except for annexes);
* do not remove the tags of type <ESMA\_ QUESTION\_DLT\_1> - i.e. the response to one question has to be framed by the 2 tags corresponding to the question; and
* if you do not have a response to a question, do not delete it and leave the text “TYPE YOUR TEXT HERE” between the tags.

Responses are most helpful:

* if they respond to the question stated;
* contain a clear rationale, including on any related costs and benefits; and
* describe any alternatives that ESMA should consider

**Naming protocol**

In order to facilitate the handling of stakeholders responses please save your document using the following format:

ESMA\_DLT\_NAMEOFCOMPANY\_NAMEOFDOCUMENT.

E.g. if the respondent were XXXX, the name of the reply form would be:

ESMA\_DLT\_XXXX\_REPLYFORM or

ESMA\_DLT\_XXXX\_ANNEX1

***Deadline***

Responses must reach us by **2 September 2016.**

All contributions should be submitted online at [www.esma.europa.eu](http://www.esma.europa.eu) under the heading ‘Your input/Consultations’.

***Publication of responses***

All contributions received will be published following the end of the consultation period, unless otherwise requested. **Please clearly indicate by ticking the appropriate checkbox in the website submission form if you do not wish your contribution to be publicly disclosed. A standard confidentiality statement in an email message will not be treated as a request for non-disclosure.** Note also that a confidential response may be requested from us in accordance with ESMA’s rules on access to documents. We may consult you if we receive such a request. Any decision we make is reviewable by ESMA’s Board of Appeal and the European Ombudsman.

***Data protection***

Information on data protection can be found at [www.esma.europa.eu](http://www.esma.europa.eu) under the headings ‘Legal notice’ and ‘Data protection’.

# Introduction

Please make your introductory comments below, if any:

<ESMA\_COMMENT\_DLT\_1>

Apologies for the minimal submission, we only became aware of this survey on the submission day. Hopefully the limited response will initiate further dialogue.

<ESMA\_COMMENT\_DLT\_1>

##### Do you agree with the list of possible benefits of the DLT for securities markets? Please explain, e.g., are these benefits unique to the DLT, are some more important than others, are some irrelevant?

<ESMA\_QUESTION\_DLT\_1>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_1>

##### Do you see any other potential benefits of the DLT for securities markets? If yes, please explain.

<ESMA\_QUESTION\_DLT\_2>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_2>

##### How would the benefits of the technology be affected, in the case where the DLT is not applied across the entire lifecycle of securities (i.e., issuance, trading, clearing and settlement, safekeeping of assets and record of ownership) but rather to some activities only?

<ESMA\_QUESTION\_DLT\_3>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_3>

##### Which activities (e.g., post-trading, other activities), market segments and types of assets in the securities markets are likely to be impacted the most by the DLT in your opinion? How is the DLT likely to modify the way securities markets operate? Please explain.

<ESMA\_QUESTION\_DLT\_4>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_4>

##### According to which timeframe, is the DLT likely to be applied to securities markets in your view? Please distinguish by type of activities, market segments and assets if relevant.

<ESMA\_QUESTION\_DLT\_5>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_5>

##### How might your organisation benefit from the introduction of the DLT?

<ESMA\_QUESTION\_DLT\_6>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_6>

##### If you are working on a concrete application of the DLT to securities markets please describe it (i.e., which activities, which market segments, which type of assets and for which expected benefits) and explain where you stand in terms of practical achievements in relation to your objectives.

<ESMA\_QUESTION\_DLT\_7>

DisLedger is a Distributed Concurrence Ledger (patent pending) that provides more secure, faster and more scalable transaction processing than consensus blockchain systems. The same benefits of immutable records, and regulatory transparency are provided, however the transactions are processed only by the actual counterparties involved and not by a consensus of the crowd.

**Overview of Concurrence Ledger Processing**

In any distributed ledger transactions can come from any traditional business function and in any asset class. It isn’t critical to the ledger whether they are system generated, or manually entered, all digital or electronic scans of paper transactions. Using concurrence multiparty transactions are handled by the same process but for simplicity this description uses just two parties and skips some trivial details.

When the parties want to process a transaction they each conduct their own cryptographic hash on the contents of their version of the transaction data which results in a transaction hash. If the parties both are using complete and accurate data to conduct the hash operation then the resulting transaction hash calculated by one party will be the same as the transaction hash arrived at independently by the other party. By comparing the transaction hashes the two parties agree that the data concerning the transaction is identical. So at the time of the transaction both parties provide digitally signed Transaction Concurrence that the other party’s record of the individual transaction is accurate and agreement has been reached. If the transaction hashes are not equal then there is a problem with one of the counterparty’s version of the data that is immediately recognized; agreement between the parties does not take place; no contractual obligation or other transaction progress occurs; and the transaction cannot be processed until appropriate remedies are made to bring the two versions of the transaction data into alignment.

Upon agreement that the individual transaction record is correct by both parties a hash of the counterparty ledger updated with that latest transaction is conducted by each party. This counterparty ledger hash is then provided to the other party for comparison. If accurate records have been kept and the transaction is updated properly, both counterparties will have an identical counterparty ledger and the cryptographic hash of one party’s ledger will be identical to a cryptographic hash of the other party’s ledger. If both counterparty ledger hashes are equal then this second concurrence, Chain Concurrence, irrefutably proves that not only is the latest transaction accurate but that the chain of all of the records on the counterparty ledger dating from the creation of the ledger to the latest transaction are accurate. Chain Concurrence provides non-repudiable proof of accurate recordkeeping also known as a clear chain of title. If the counterparty ledger hashes are not equal then there is a problem with updating one of the counterparty’s ledgers and the problem can be resolved. Since the update to the counterparty ledgers wasn’t successful; agreement between the parties did not take place; no contractual obligation is created and effectively the transaction fails.

These two concurrences ensure that the ledgers between counterparties are kept identical because the current transaction being processed and the historical chain of transactions from the beginning of the system must be identical or a transaction cannot be processed and the ledger cannot be altered. However each time a transaction is processed successfully and the counterparty ledger is updated a new counterparty ledger hash is agreed to by the parties. When the next transaction is conducted the hash of the counterparty ledger becomes part of the transaction to be processed which creates the chain of title.

A log of these sequential counterparty ledger hashes and all transactions attempted is maintained by both parties. At any time a party can request that their counterparty verify the corresponding counterparty hash. This periodic check provides ongoing proof of concurrence between the parties of the entire chain of transactions between them. Hashes can be repeatedly verified and the continued concurrence documented over time as evidence of the accuracy of the ledger. If in the future a counterparty ledger is claimed to have been altered by one party without concurrence by the other party the log will provide evidence of which system was correct and disputes can easily be resolved.

DisLedger is finalizing the system architecture for Distributed Concurrence Ledgers. We are in discussions with participants in the capital markets allowing them to utilize the architecture within their systems. Our goal is to provide the technology globally for both the capital markets and commercial banking sectors.

More information is available at <http://www.DisLedger.com> and we will provide additional explanations and descriptions as required.

<ESMA\_QUESTION\_DLT\_7>

##### Do you agree with the analysis of the potential challenges? Please explain, e.g., are some more important than others, are some irrelevant in your view.

<ESMA\_QUESTION\_DLT\_8>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_8>

##### Do you see any other potential challenges? If yes, please explain.

<ESMA\_QUESTION\_DLT\_9>

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<ESMA\_QUESTION\_DLT\_9>

##### Which solutions do you envisage for these challenges and where do the current initiatives stand in terms of practical achievements to overcome them?

<ESMA\_QUESTION\_DLT\_10>

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<ESMA\_QUESTION\_DLT\_10>

##### Do you agree with the analysis of the key risks? Please explain, e.g., are some risks more important than others, are some irrelevant in your view.

<ESMA\_QUESTION\_DLT\_11>

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<ESMA\_QUESTION\_DLT\_11>

##### Do you see any other potential risks? Please explain.

<ESMA\_QUESTION\_DLT\_12>

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<ESMA\_QUESTION\_DLT\_12>

##### How could these risks be addressed? Please explain by providing concrete examples, especially for the risks potentially affecting your organisation.

<ESMA\_QUESTION\_DLT\_13>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_13>

##### Do you think that the DLT will be used for one of the scenarios above? If yes, which one(s)? If no, please explain?

<ESMA\_QUESTION\_DLT\_14>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_14>

##### If the DLT is used for one of these scenarios, how compliance with the regulatory requirements attached to each scenario could be ensured?

<ESMA\_QUESTION\_DLT\_15>

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<ESMA\_QUESTION\_DLT\_15>

##### Do you think that the DLT will be used for one of the scenarios above? If yes, which one(s)? If no, please explain?

<ESMA\_QUESTION\_DLT\_16>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_16>

##### If the DLT is used for one of these scenarios, how could compliance with the regulatory requirements attached to each scenario be ensured?

<ESMA\_QUESTION\_DLT\_17>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_17>

##### Do you think that the DLT will be used for safekeeping and record-keeping purposes? Please explain, with concrete examples where appropriate.

<ESMA\_QUESTION\_DLT\_18>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_18>

##### If the DLT is used for the safekeeping and record-keeping of ownership, how could compliance with the regulatory requirements be ensured?

<ESMA\_QUESTION\_DLT\_19>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_19>

##### Do you think that the DLT will be used for regulatory reporting purposes? Please explain, with concrete examples where appropriate.

<ESMA\_QUESTION\_DLT\_20>

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<ESMA\_QUESTION\_DLT\_20>

##### If the DLT is used for regulatory reporting purposes, how could compliance with the applicable regulatory requirements be ensured?

<ESMA\_QUESTION\_DLT\_21>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_21>

##### Do you think that the DLT could be used for other securities-related services than those already discussed, in particular trading and issuance?

<ESMA\_QUESTION\_DLT\_22>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_22>

##### Do you see potential regulatory impediments to the deployment of the DLT in securities markets?

<ESMA\_QUESTION\_DLT\_23>

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<ESMA\_QUESTION\_DLT\_23>

##### Should regulators react to the deployment of the DLT in securities markets and if yes how? If you think they should not do so please justify your answer.

<ESMA\_QUESTION\_DLT\_24>

TYPE YOUR TEXT HERE

<ESMA\_QUESTION\_DLT\_24>